IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An image reproduction apparatus including an image copying function for reproducing input image data including image data obtained by reading a document, and for outputting the reproduced image data, the image reproduction apparatus comprising:

extension control means to which a controller board is connectable to add one or more optional units to realize one or more ~~desired~~ extension functions, the extension control means allowing operation control in the <u>one or more</u> extension functions to be performed in a same manner as in the image copying function, and allowing image data to be input/output in the extension functions in a same format as in the image copying function<u>, the controller board including a system controller and an arbiter that arbitrates use of resources shared by the one or more extension functions</u>;

image quality retaining means for retaining a quality of an image reproduced via the extension control means at a [[high]] level similar to that of an image produced by the image copying function;

operation control means for controlling operation <u>of the image reproduction apparatus</u> in a similar manner, regardless of whether the operation is associated with the image copying function or the one or more extension functions provided by the extension control means;

resource sharing means for allowing a resource used in the image copying function to also be used by the extension control means in inputting and/or outputting image data;

image input means for reading an image of the document and outputting image data of the document image; and

image input/output control means for controlling inputting/outputting of image data

depending on an output characteristic of image data output from the image input means such

that the image input means inputs/outputs image data in the same form.

2. (Original) The image reproduction apparatus according to claim 1, further

comprising:

line decimation control means for converting the resolution of the image data; and

pixel loss compensation means for compensating for a loss of pixel information

caused by line decimation.

3. (Original) The image reproduction apparatus according to claim 1, further

comprising:

data format conversion means for converting a data format of image data such that

transmission and reception of image data to and from the extension control means is

performed in a same manner, regardless of whether the image data is color image data or

monochrome image data.

4. (Original) An image reproduction apparatus according to claim 2, wherein the line

decimation control means divides a control signal specifying a reading line into a plurality of

control signals and divides a single functional module into a plurality of functions, thereby

controlling a density conversion.

5. (Original) The image reproduction apparatus according to claim 1, wherein the

image input means is one of a contact image sensor and a charge coupled device.

6. (Original) An image reproduction apparatus according to claim 5, further comprising:

sequential line discrimination/control means for, when color image data is input using a contact image sensor as the image input means, detecting the color of image data currently being transmitted and processed and for controlling a reading of a plurality of data lines at a time on a color-by-color basis.

7. (Original) An image reproduction apparatus according to claim 2, wherein the line decimation control means performs decimation in an optimum manner; and

the pixel loss compensation means performs compensation in an optimum manner depending on whether image data is color image data or monochrome image data.

8. (Currently Amended) An image reproduction apparatus including an image copying function for reproducing input image data including image data obtained by reading a document and outputting the reproduced image data, the image reproduction apparatus comprising:

extension control means to which a controller board is connectable to add one or more optional units to realize one or more ~~desired~~ extension functions, the extension control means allowing operation control in the <u>one or more</u> extension functions to be performed in a same manner as in the image copying function and allowing image data to be input/output in the extension functions in a same format as in the image copying function;

image quality retaining means for retaining a quality of an image reproduced via the extension control means at a [[high]] level similar to that of an image produced by the image copying function;

4

operation control means for controlling operation <u>of the image reproduction apparatus</u> in a similar manner, regardless of whether the operation is associated with the image copying function or the one or more extension functions provided by the extension control means;

resource sharing means for allowing a resource used in the image copying function to also be used in inputting and/or outputting image data used by the extension control means;

line decimation control means for converting resolution of the image data;

pixel loss compensation means for compensating for a loss of pixel information caused by line decimation;

invalid pixel detection means for detecting an invalid pixel that causes a streak image in an image read using a sheet-through document feeder<u>, prior to reading the image using the sheet-through document feeder</u>;

streak image correction means for correcting the streak image; and

warning means for warning of an occurrence of the invalid pixel.

9. (Original) An image reproduction apparatus according to claim 8, further comprising:

history recording means for recording a history of the occurrence of the invalid pixel detected by the invalid pixel detection means;

blank document page detection means for detecting a blank document page;

blank document page warning means for determining whether a read document page is blank based on the history of invalid pixel occurrence recorded by the history recording means and a result of detection made by the blank document page detection means, and warning, if the read document page is determined to be blank, that the read document is blank; and

reading job control means for controlling an output of a document read in a reading job in accordance with a result of the determination made by the blank document page warning means.

10. (Original) An image reproduction apparatus according to claim 8, wherein the invalid pixel detection means reads a background plate of the sheet-through document feeder and detects sizes of invalid pixels and a total number of invalid pixels.

11. (Original) An image reproduction apparatus according to claim 8, wherein the invalid pixel detection means manages the history of occurrence of detected invalid pixels and records the history as invalid pixel occurrence information on detection result recording means.

12. (Original) An image reproduction apparatus according to claim 9, wherein the blank document page detection means detects a blank document page by dividing one page of the read document image into a plurality of blocks, detects a total number of invalid pixels and a number of invalid pixels at successive locations in each block, and calculates sums of the numbers over all blocks.

13. (Original) An image reproduction apparatus according to claim 9, wherein the blank document page detection means detects a blank document page by dividing one page of the read document image into a plurality of blocks, detects a total number of invalid pixels and a number of invalid pixels at successive locations in each block, calculates sums of the numbers over all blocks, determines from the calculated sums a streak image that is predicted to occur, subtracts a streak image component caused by successively located invalid pixels

from the document image data, thereby predicting a real state of the document, and

determines from the predicted real state whether the document page is a blank document page

or a document page including a streak image.

14. (Original) An image reproduction apparatus according to claim 9, wherein the

blank document page detection means manages information indicating whether document

pages read in the reading job are blank, in units of document pages, and records the

information as blank document page detection information on detection result recording

means.

15. (Original) An image reproduction apparatus according to claim 11, wherein the

detection result recording means includes a nonvolatile storage means.

16. (Original) An image reproduction apparatus according to claim 9, further

comprising:

display means for displaying results of detection made by the invalid pixel detection

means and the blank document page detection means.

17. (Original) An image reproduction apparatus according to claim 9, further

comprising:

image output means for outputting, on paper, results of detection made by the invalid

pixel detection means and the blank document page detection means.

18. (Original) An image reproduction apparatus according to claim 9, wherein

results of detection made by the invalid pixel detection means and the blank document page

detection means are transmitted to an external apparatus via communication means connected

to the extension control means.

19. (Currently Amended) An image reproduction method of reproducing input image

data such as that obtained by reading a document and outputting the reproduced image data,

the method comprising:

controlling inputting/outputting of image data depending on an output characteristic

of image data output from image input means such that the image input means is allowed to

input/output outputs image data in a same form; and

detecting an invalid pixel that causes a streak image in an image read using a sheet-

through document feeder, prior to reading the image using the sheet-through document

feeder.

20. (Original) An image reproduction method according to claim 19, further

comprising:

converting a resolution of the image data; and

compensating for a loss of pixel information caused by line decimation.

21. (Currently Amended) An image reproduction method according to claim 19,

further comprising:

converting a data format of the image data such that outputting of the image data is

performed in a same manner regardless of whether the image data is color image data or

monochrome image data.

22. (Original) An image reproduction method comprising:

reading an image;

detecting an invalid pixel from the image read in the reading step;

detecting a maximum width of invalid pixels detected in the step of detecting the

invalid pixel;

detecting a number of invalid pixels detected in the step of detecting the invalid pixel;

detecting allocation, on a document, of each invalid pixel detected in the step of

detecting the invalid pixel;

predicting an occurrence of a streak image in a document image from results of

detection made in the step of detecting the maximum width, the step of detecting the number

of invalid pixels, and the step of detecting the location of each invalid pixel; and

correcting the streak image in the document image based on a result of the prediction

made in the predicting step.

23. (Currently Amended) An image reproduction method, comprising:

reading an image;

dividing the image into blocks with a predetermined block size;

detecting a total number of invalid pixels and a number of invalid pixels at successive

locations in each block produced in the dividing step; and

detecting a blank document page by calculating a sum of the numbers detected for

respective blocks in the step of detecting the total number of ~~valid~~ invalid pixels.

24. (Currently Amended) An image reproduction method, comprising:

reading an image;

dividing the image into blocks with a predetermined block size;

detecting a total number of invalid pixels and a number of invalid pixels at successive

locations in each block produced in the dividing step;

determining whether a document page is blank, by determining a streak image which

is predicted to occur, from results of detection made in the detecting step in terms of the total

number of invalid pixels and the number of invalid pixels at successive locations in

respective blocks, and subtracting a streak image component caused by successively located

invalid pixels from the document image data, thereby predicting a real state of the document,

and determining from the predicted real state whether the document page is a blank document

page or a document page including a streak image.

25.   (Currently Amended) A computer readable medium storing a program for

causing configured to cause a computer to execute the method according to any one of claims

19 to 24.